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Curiosity Update: Rover Rocks Rocker-Bogie
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Hello, my name is Sean Haggart and I'm a mobility engineer on the Mars Science
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Laboratory. As you can see down there, we just recently completed testing the wheels
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and suspension system on the flight rover. Now, the mobility system might look
familiar.
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It's a classic rocker-bogie suspension system we've used for the last two
generations of
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Mars rovers and it does a lot of things actually, the mobility system hasn't done in
the past.
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So for this mission, the mobility system not only drives the rover around, it's also
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the landing gear. The wheels are actually the first thing that make contact
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to the surface of Mars. Now just about everything you see on the mobility system
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looks black, but that doesn't mean it's all the same material. The tubes,
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the suspension arms coming down to the wheels; those are all titanium.
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The tires themselves; those are aluminum. The shell on those tires is actually a
piece
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of machined aluminum that's about 30-thousandths of an inch thick.
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It's about the thickness of seven pieces of paper, and when they're that thin,
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it makes them actually soft, so they behave in much the way a rubber tire would
behave
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--give you that springy load for landing, for driving over rocks. This test was sort
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of an obstacle course for the rover because we have to drive over obstacles at
certain
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heights and those correspond to rocks at certain heights that we expect to see at
the surface
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of Mars. So those ramps are mimicking those rocks to make sure that we can actually
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drive over them and get to the science. Now you'll notice that it's six-wheel drive
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and all four-corner wheels steer. Now, those wheels can steer plus or minus 90
degrees.
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What that allows you to do is actually position the wheels, kind of toe-in and turn
the
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rover in place, and it makes it a very maneuverable platform to position itself for
science.
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What you saw in that test was actually top speed of the rover, about four
centimeters
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per second. Or put it another way, it takes about 40 minutes to go the length of a
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football field. We want to go slow because when you're 50-million miles away from

the
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nearest service station. It's okay to go a little slow and be a little careful.
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My name is Sean Haggart. This has been the Building Curiosity update.
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NASA, Jet Propulsion Laboratory, California Institute of Technology
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